Space Weather Forecast

Issued on Wednesday, 10 August 2022 at 01:11 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Reducing chance of further Minor Geomagnetic Storms through period.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been very low over the past 24 hours, with X-ray activity at background. There are currently five numbered sunspot regions on the visible disc, with a new region transiting around the southeastern limb. Most spots were single uni-polar types and either stable or fading, with only the newly numbered bi-polar southern region potentially showing some spot proliferation.

No Coronal Mass Ejections (CMEs) were visible in available imagery.

Solar Wind / Geomagnetic Activity: Earth continues to be under the influence of fast winds from a coronal hole.

The solar wind speed was elevated through the period, with little variation in its number of particles. The associated magnetic field was at weak levels with small fluctuations. The north-south component of the magnetic field showed frequent fluctuations in the north-south orientation, but with the south orientation more dominant. Geomagnetic activity was mostly Unsettled to Active (Kp 3 to 4).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be Very Low or Low, with a Slight Chance of isolated Common-class flares.

Solar Wind / Geomagnetic Activity: No CMEs feature in the current forecast.

Geomagnetic activity is thought likely to carry a risk of G1 through midweek as a result of elevated solar winds from a succession of coronal holes. Solar winds may remain slightly elevated later this working week, before declining into the weekend as the coronal holes rotate away westwards. The associated threat of any further G1 should also recede, with Quiet to Unsettled conditions returning.

Energetic Particles / Solar Radiation: No solar radiation storms are expected given the current relatively few and magnetically simple cohort of sunspots.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	10	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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